1: Longrigg G-4, 5 (ca. 1915-1940) MH1 Iraq MH1

the American School of Oriental Research founded in 1923 and the British School founded in 1929 maintained headquarters in Baghdad, and both published the results of their researches.

In the field of Public Health the Government services had achieved much, but not the impossible. They had faced an immense field to cover and to conquer, had started from nothing, and had been always restricted by lack of funds and trained officials; and meanwhile, inevitably, the disease- or weakness-producing factors in the territory, and the apathy and conservatism of its people, continued. The problem of general malnutrition and resulting lack of physical vigour was, in fact, the problem of poverty: the cure, still distant, lay as much or more in increased wealth as in increased enlightenment; and the same was true, in spite of active and multiplying maternity and child-welfare clinics, of an infant death-rate still tragically high. Little, save increasingly comprehensive and practical study, had yet been done to combat the curse of hookworm, malaria, or bilharzia; a comprehensive effort against these diseases and against tuberculosis, eye-disease, and the typhoid group must call insistently for more time, more funds, and more specialized staff. Steps taken against epidemic disease had been successful; plague and cholera had scarcely appeared for a quarter-century, and smallpox was well handled with full modern resources. Urban sanitation had been improved, sewage schemes adopted, and sanitary inspector training developed; but conditions in this respect over most of the territory remained wholly primitive, and the majority of 'Iraqi doctors were little interested in public health administration. The country at large was served by some eighty hospitals, of which three-quarters were general and a quarter specialized for fevers, mental and venereal diseases, leprosy (at 'Amara), children's and chest and eye diseases; a quarter of the whole were in Baghdad. Non-governmental hospitals were those of the oil companies, foreign missions, and the minority communities. The Jewish Mir Elias Hospital was still open, for patients of all creeds; all other Jewish hospitals and dispensaries had been closed. The Railways, the Port, the Police, and the Army maintained their separate Medical services. The supply of doctors, thanks to the Royal Medical College, had much improved since the thirties, but some reliance on foreigners was still necessary; some thirty of these were so employed in 1951 and recruitment of more was in progress. Registered practitioners in all numbered some 300 in 1945, 420 in 1949. The reluctance of 'Iraqi doctors to serve in the remoter regions—or, indeed, elsewhere than in Baghdad—was still an embarrassment. Nevertheless, the busy and valued hospitals and dispensaries maintained in all parts of 'Iraq were playing a major stabilizing as well as a

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

that he can devote his full time to public health work. It will also be important to provide both the provincial and district medical officers with sufficient transportation to enable them to discharge their duties.

VI. Community Planning and Facilities

In the past, communities have unavoidably grown up rather haphazardly. The older parts of the cities are characterized by great congestion, narrow and winding streets, open drains and generally unsanitary living conditions. Livestock are frequently kept in buildings and backyards of major cities. Overcrowding has been greatly aggravated by the influx of people from the land seeking to escape the hard conditions of life in the rural areas and to find opportunities for employment in the cities. Many of these have simply squatted on vacant lots and on the outskirts of cities; they live in primitive, poorly constructed mud and mat huts under conditions of great squalor and without sanitary facilities. Baghdad has about 60,000 of these so-called *sarifa* dwellers and Basra probably no less than 20,000. In each case most of them have immigrated from the province of Amara where problems of land tenure and the silting and salting of land have made conditions of life unusually difficult. Sewage systems are lacking in all of the cities.

Villages are generally clusters of mud houses where, in many cases, men and livestock are not segregated. They have usually grown up around wells or along streams and irrigation canals under conditions where water pollution becomes inevitable. For the most part, safe water supplies are not available. The current flight from the land cannot be arrested as long as the ordinary village lacks the most elementary facilities of sanitation, medical aid, clean drinking water, and schooling, and generally offers little attraction to the person who wants to improve his lot and enjoy a reasonably comfortable life.

Dwellings of mud and mats are not of themselves undesirable. They have the advantage of cheapness and, when properly constructed, are well adapted to climatic conditions in Iraq. Often,

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

452 probably amounted to only ID 2,300,000 of which about 70 percent represented urban mortgages. Of the latter the greater part probably consisted of mortgages on buildings other than houses.
[652] At the beginning of 1950 a government Mortgage Bank began operations. Only ID 100,000 of an authorized capital of ID 1,000,000 has, however, been paid in; and the Bank has had to supplement its resources by borrowing. Moreover, it can make loans only for a maximum of four years and up to ID 2,000. To facilitate an expansion of its operations, the Mission suggests that the Development Board provide funds sufficient to increase its actual capital to about ID 1,500,000 and that the Bank be authorized to extend the duration of its mortgages to at least 15 years where warranted.

344 The Mission has given no special attention to the need for public buildings for which the Development Board has budgeted ID 3,350,000 in its five-year program. Undoubtedly the construction of new buildings for the accommodation of government offices is in certain cases desirable, for existing government buildings are for the most part scattered, overcrowded, poorly lighted and equipped and therefore not conducive to working efficiency. As already indicated, the new railway building in Baghdad should provide some space for government offices.

Water and Electricity Supply

364 365 With respect to community facilities, the most urgent tasks appear to be the installation of sewage systems for the major cities, and the provision of safe water supplies and electricity.

It is suggested that a start be made with a sewage system in Baghdad, since the rising level of the subsoil waters makes the need of this city most acute. A plan for such a system has already been prepared by consultants to the government. The initial step might be to carry it out for that portion of the city on the east bank of the Tigris. It would be useless, however, to proceed unless there is a determination to make connections with the system compulsory for all property owners who are supplied with municipal water.

A safe water supply is, as was pointed out earlier, one of the keys to the health problem. While a number of cities and towns now have a reasonably safe water supply, the situation in the great

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

majority needs substantial improvement. The Department of Municipalities has drawn up a five-year program to provide or extend water supply systems for 114 municipalities with a total population of 943,000 people. Since such water systems are technically simple and the need is great, the Mission suggests that the Department be authorized to proceed with this program. Water supply systems for villages must, of course, be simple and inexpensive. In some cases, wells may prove to be the solution, although frequently brackish water is encountered; in other cases, water piped from a stream or canal with the help of a small pump and run through simple filters may be possible.

Outside of Baghdad and Basra municipal power plants are generally inadequate, and a considerable number of municipalities with a total population of 175,000 have no electricity at all. Baghdad and Basra, which together account for a generating capacity of 51,000 kilowatts, have a sufficient supply; and Kirkuk is adequately supplied from the large power plant of the Iraq Petroleum Company. Total generating capacity available in the remaining municipalities, however, is only 14,000 kw. A program for the expansion of this capacity and the provision of electricity for all municipalities would involve the installation of generators with an aggregate capacity of 10,000 kw. It would be desirable to proceed with such a program, provided simultaneous steps were taken to improve the management of municipally-owned power plants outside Baghdad and Basra. In these two cities the power plants are owned and managed efficiently by a private company and the Port respectively. At present the machinery in the plants of other municipalities is poorly maintained and little or no attention is paid to depreciation. Power "losses" are as high as 36 percent compared to not more than eight percent in Baghdad and Basra; and the rates charged range from 30 to 55 fils[4] per kw-hr as contrasted with 18 fils and less in Baghdad and Basra. To remedy these evident deficiencies it is recommended that serious consideration be given to entrusting the management of such plants to a competent private firm like the Baghdad Light and Power Company.

The Mission does not believe that it would be economic to develop hydroelectric power at present. The capital cost of hydro-

[4] One dinar equals one thousand fils.

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

congested living conditions combined with a coarse and monotonous diet.

In common with many other countries, there has been a drift to the towns, and unsanitary slums have formed on the outskirts of some cities. Steps should be taken to improve the living conditions of these slum dwellers. So far sewers and sewage disposal are generally lacking in the cities and towns. Baghdad has septic tanks and cesspools, but there are still some open drains; most of the larger towns have similar systems of sewage disposal but conditions in the smaller towns and villages are still very primitive. The disposal of household refuse and the cleaning of streets are generally well carried out in the bigger cities but not in most towns and villages.

Constant pilgrimage traffic creates another problem in public health. The holy shrines of the Shia sect of Moslems are in Iraq and a large number of Iraqis are members of this sect. There is a continuous stream of travelers through the country, including both Iraqis and foreigners, mostly Iranians, visiting the holy shrines, and Iraqi and foreign pilgrims on their way to Mecca. All this traffic exposes Iraq to the dangers of imported epidemic disease and stringent quarantine regulations have been enacted. But the land frontier with Iran is so long that it is quite certain many incoming pilgrims never are subjected to any control measures. This means that Iraq needs internal preventive services of the highest possible standard. Currently, all pilgrims leaving Iraq for Mecca are vaccinated against smallpox and inoculated against cholera.

The need for greater emphasis on preventive measures stands out clearly in even a brief analysis of the most debilitating diseases and their causes.

Intestinal Disorders

Ankylostomiasis (hookworm disease) in itself produces anemia. Many patients are so weak by the time they reach a hospital that they require lengthy treatment. It thrives in an unsanitary environment characterized by inadequate sewage disposal, open drains, and lack of proper latrines. Incomplete surveys indicate that it is most prevalent in the South.

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

a greater security of tenure. Other factors, which have no doubt affected the permanence of villages in some parts of the irrigation zone in central and southern Iraq, are the salination of the land and the silting of canals. In such cases, the fellahin have no choice but to abandon their villages.

In spite of these differences, however, the villages have a number of characteristics in common. The typical village is a cluster of huts huddled together without any orderly design. There are no communal facilities or open spaces for the recreation of the children. The huts are so constructed as to keep out heat, cold and sandstorms at the minimum expense. Consequently, they consist of a single room with thick walls and a doorway, which usually opens on a small enclosed yard that is used for both cooking food and keeping draft animals. In order to avoid sand and sunlight, windows are either very small or totally lacking; sashes are expensive. Furnishings are limited to such elementary necessities as a mat and a plain table or a bench. Sanitary facilities, including latrines, are generally lacking.

The villages are necessarily located near a source of water, by a canal in the irrigation zone, by a stream or a well in the North. The water is not piped, but must be carried from its source to wherever it is used. Nor is it purified, although the canals in the irrigation zone may be heavily polluted. The water which has been used by men for washing and in which animals have immersed themselves while drinking is often used for human consumption. The constant trampling of the canal banks for these purposes leads to leaks and, hence, to stagnant pools near the adjacent village. Where the source of water is a well, the earth nearby may be dug out for use in the construction of houses and so, similarly, a stagnant pool may be the result. Such pools, combined with the total absence of any sanitary disposal of waste and garbage, constitute a serious danger to health.

Trees are rarely seen in the villages, although they would give relief from the sun and from sandstorms. Trees would also provide firewood instead of the fuels currently used—animal dung, which could be used instead as fertilizer, and brushwood, which has to be gathered with considerable effort. Small gardens for vegetables are unknown. In fact, fruit and vegetables are almost

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

cient funds. The Department of Municipalities, however, anticipating assistance from the Development Board in its financing, has prepared a plan of construction during the next five years which will include the expansion or construction of new facilities in 114 municipalities having an aggregate population of approximately 950,000. The plan is practical and technically follows present methods. Many of the treatment plants are of the same size. This, fortunately, permits standardization which considerably reduces capital costs. The total estimated cost of the program is ID 5,651,600 of which approximately 50 percent would be in foreign exchange, mostly in sterling.

There are numerous villages in addition to municipalities where the problem of obtaining water is very critical. In many cases, this could be relieved by either a single well or by pumping small quantities of water at some distance from streams or irrigation ditches. Such sources of water would in many cases be impure and would require the use of clay filters. Nevertheless, it would relieve the people of the burden of carrying water for human consumption a great distance. These facilities should not cost more than ID 1,500 per installation.

With the need for pure water so critical, it is recommended that the Development Board assist the Department of Municipalities in financing the five-year program for the municipalities. In the meantime, the Department should study the problem of supplying water to the numerous villages and formulate plans for consideration by the Development Board.

Sanitation

Adequate disposal of waste water is an acute problem throughout Iraq and a long-term program needs to be drawn up. Pending this, a start should be made with a sewage system in Baghdad, since the rise in the subsoil waters makes the need of this city most acute. In 1947, an English firm prepared a report on the installation of a sewage and drainage system for the city—complete with pumping stations, sewage purification works, etc., and estimated to cost ID 4,600,000 on the east bank of the Tigris and ID 4,300,000 on the west bank. The proposed scheme could be undertaken in stages.

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

365 The initial step might be to carry out the plan for the east
364 bank according to a schedule based on the relative importance of its various elements. It would be useless, however, to proceed unless connections with the system are made compulsory for all property owners. No new constructions or major building alterations or enlargements should be permitted without adequate provision for such connections. Existing structures which are connected to the water supply system should be required to connect gradually to the sewer, according to a scheme to be worked out by the government and based on sanitary, engineering and financial considerations. The administration of the sewage system would logically come under the jurisdiction of the Water Board. The system might be made to help pay for itself by setting a certain surcharge over the cost of water actually used and then discharged into the system.

For the other larger cities, surveys should be conducted now to gather the data necessary for the actual design of each system. For example, the preliminary studies for the sewage problem of the City of Mosul should be preceded by a topographic survey. It is believed that the entire flow of the sewage and rain water could be designed so that no pumping will be needed. Chemical treatment of the sewage is to be preferred to discharge into the Tigris, because people living in downstream villages get their drinking water directly from the river.

For the smaller towns and villages, efficient and inexpensive individual sewage disposal units should be installed privately according to models prepared and tested by the government. Community bath and toilet facilities should be provided in the poorer sections of towns to supplement private individual units. Public lavatories should also be provided in the cities wherever there are concentrations of people, such as in business areas, parks and other public places.

Electric Power

365 Municipal power plants serve primarily public and domestic
377 lighting needs. Most industrial plants supply their own power. Cheap fuel also makes it possible for small direct-connected diesels to compete favorably with electric motors as prime movers, pri-

5: Harrison D-4 (1912-1924) 1924 M1 Middle East
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try rather than fostering the development of something indigenous and natural. Under such a system the enforcement of law may become of necessity very mechanical, as when an Indian Sepoy nearly knocks down an inoffensive Arab pedestrian by a blow with his fist for no greater crime than walking on the wrong side of the road to avoid a mud puddle. In the courts, too, a crowd of lawyers and an abundance of red tape, with venal underlings, may serve to make the paths of justice tortuous and uncertain in spite of the best intentions on the part of the presiding judge.

Nevertheless, even under such handicaps as those we have indicated, there is no questioning the very great material progress that is to be seen in Mesopotamia. Even before the war one of Baghdad's streets was paved, and since the British have taken over the administration of the kingdom, all sorts of improvements have been introduced. The railroad system of the country now extends 360 miles from Basra to Baghdad and from there on nearly to Mosul. There are several subsidiary lines, the total amounting to over 1000 miles. By far the greater part of this mileage was constructed by the British for war purposes. Under British rule, also, the Hindiya Barrage and other less important irrigation works have been kept in order and improved and extensive harbor improvements at Basra undertaken.

British sanitary and health officers have been appointed for Mesopotamia and no praise is too high for their largely unappreciated but nevertheless unselfish and extremely efficient labors in that country. The hospital work that has been undertaken in Basra, Baghdad and Amara, the inspection of eating houses, and the maintaining of sanitary conditions have been excellently done.

5: Harrison D-4 (1912-1924) 1924 MI Middle East
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364 Unfortunately the fact that this work is practical benevo-
764 lence of the finest sort and carried on in the finest spirit has not served to commend sanitary regulations to the Arab, who regards them as a nuisance, a hindrance to business and an infringement of his personal liberty.

871 Mesopotamia has also grappled with the whole prob-
185 lem of education most courageously. An educational
177 system has been organized which includes normal schools for teachers and a large number of primary and secondary schools for both boys and girls. There are a smaller number of high schools, and a central university is planned. Fifteen years ago the dominant European influence in this community was French, and no one could claim to be educated who could not talk that language fluently. There was a marked change a little later, and before the Great War German was the commanding influence. Now, of course, the predominant western influence is English, and it seems likely to remain so, for commerce will probably talk the English language for many years, whatever political upheavals the country may be destined to experience. It is true that the educational system has not as yet taken very deep root and that much of the work done is very superficial, but it is none the less exceedingly creditable and encouraging. Moreover, this western system of education will probably be more or less permanent, for it will always be the gateway to remunerative positions.

185 In general, the people of Mesopotamia have been
177 brought into contact with conditions of modern life and are anxious for further progress. New wants have been created, and a certain increase in the commerce of the country is the inevitable result. All manner of western dress goods and shoes are to be found in the bazaars, as

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II. T-2 BASIC PROBLEMS OF THE RURAL PEOPLE

A. PRESENT CONDITIONS

369 511 162 The some 4,000,000 more people of Iraq who live the rural areas have been long characterized by many people both within and outside Iraq as suffering from poverty, ill health and illiteracy. These conditions become readily apparent to one visiting the villages of the country today. The characterization of the people can be extended to their being ill-housed, ill-fed and ill-clothed.

369 511 The survey was immediately impressed with the crude and inefficient methods of making a living and the unnecessarily poor and unhealthy home and village life. These conditions can be remedied by instruction and assistance. People farm with primitive equipment and are wasteful of land and water. In village after village there are mud huts without light or fresh air. Families live, sleep and eat in single rooms packed together with animals, food, stores, farming equipment and refuse. Children play in courtyards filled with animal dung and filth, many people suffer from infected eyes, skin sores and diseases caused by unsanitary conditions which could be greatly reduced by better sanitary conditions. In the homes food is prepared on the floors where it comes in contact with the accumulated filth, flies, chickens, dogs and other animals. Pots and pans and mixing spoons lie on the ground. They are crudely cleaned with dirty water or old rags. There are no such things as kitchens, screened lockers for food or clean and covered places for drinking water in the homes of the rural villagers. Instruction in home care could overcome much of this.

369 364 511 The lack of pure drinking water is one of the most acute problems in these villages. Some pumps and water tanks and some water piped from springs to collection pools have been installed. However, these facilities frequently lack sanitary protection and show lack of proper maintenance by the communities. Often wells have around them accumulation of stagnant water, mud and animal dung. Another acute problem is the lack of any facilities in many villages, and homes for taking care of human waste. Where toilets exist they are more uncovered holes open to flies and a source of spreading disease.

369 871 Many villages have not yet received the benefit of schools where children can learn some of the concepts and techniques which would enable them to understand the need for improving their conditions and help their families in doing so. In some villages young girls are not allowed by their elders to attend school or not provided with primary schools, buildings and teachers. Much of a new generation is growing up illiterate and ignorant of how they might help themselves when they grow up.

369 423 471 511 Inquiry among villagers and local officials revealed that although there might be a headman or mukhtar of the village, nearly all direction and management of their affairs comes from outside leadership. Communities lack the local leadership and organization by which they might progress through their own efforts. Sheikhs, landlords, their agents (sirkal) who are frequently local government representatives as well, direct the farming operations, decide the lands on which the villagers will farm and live, provide much of the seed and equipment, direct the cleaning of ditches, collect the shares of crops and other payments and decide whether or not the farmers may live and work on the land during the next year. Even the farmer who owns his own land is not without obligations to money lenders, tax collectors and government supervision. The farmers and tenants of Iraq are dependent upon

63:Simmons et al G-5 (1941-1951) 1954
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As in other countries, all gradations in housing, between the palatial homes of the wealthy and the congested hovels of the poor, are found in the cities. Brick and cement are the usual building materials, although stone is widely used in Mosul and other towns in the north. In Baghdad, Arabic and Turkish styles of architecture predominate in the older sections of the city; modern villas, in the newer residential developments. Basra is a composite of 3 townships: Basra City, a typical Arab town; Ashar, the business community; and Margil, the new town and port center. In the oil field areas, housing estates are maintained by the operating companies for the benefit of their workers.

ENVIRONMENT AND SANITATION

Water Supplies

Water supplies are reasonably plentiful in the inhabited portions of the country. In the highland areas of the north and the northeast, water is obtained from streams, springs or wells, but in the alluvial plains, where the rainfall rarely exceeds 2 to 6 inches, it is taken entirely from rivers, canals, lakes or wells. Water is scarce in the desert regions but is available in some localities from waterholes, dug in dried stream beds, or from occasional permanent deep wells. The well waters in the mountain districts are sometimes highly mineralized, while shallow well supplies in the lower delta are generally brackish.

The domestic water supplies are treated before distribution in the larger cities and towns, but throughout rural Iraq they are unprotected and frequently polluted. The municipal water supply for the city of Baghdad is pumped from the Tigris River at 4 stations—3 on the left bank and 1 on the right. The entire supply is treated by sedimentation and chlorination, while filtration plants are also operated in connection with the pumping stations at Karrada and Sarrifiya, on the left bank. It is piped to individual service connections in all sections

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of the city, except in some of the poorer districts, where community taps are installed. The construction of additional plants for the treatment of the water supplies in the surrounding towns was planned in 1952. 312 364

At Basra, the water supply for the 3 townships and some of the adjacent villages is taken from the Shatt al Arab. It is treated by filtration and chlorination at Jubailah before distribution to suitably located storage tanks, from which it is piped to individual houses and community taps. The municipal supply of Mosul is derived from the Tigris River and treated by filtration and chlorination. River supplies are utilized by the capital cities of all the provinces, except Erbil and Sulaimaniya, on the northeastern border, where adequate spring sources are available. Treated water is furnished by the Iraq Petroleum Company to its installations in the vicinity of Kirkuk, and a portion of the supply is delivered by the company to the municipality. In the various cities the drinking water supplies are supervised by the municipal authorities. Bacteriologic examinations are made periodically in the laboratories of the government health services. No control is exercised over the smaller supplies, however, except when gross pollution is suspected. [744]

The waters of the Tigris and the Euphrates rivers have been utilized for irrigation for centuries, and the existing ruins appear to indicate that the ancient systems were more extensive than those in use today. Pumps and more primitive types of lift irrigation predominate, but other methods are employed along the course of the rivers, including tidal flow irrigation on the Shatt al Arab and free flow irrigation in the lower delta. In the northern provinces, local irrigation systems, fed from underground conduits which tap springs in the foothills and are connected by series of wells, are found in many areas. These *karez* are comparable with the *qanats* of northern Iran. 312

Several large-scale projects have been undertaken for the purpose of regulating

312 and controlling the flow of the rivers. By the construction of the Hindiyah dam on the lower Euphrates in 1913, part of its flow was diverted through the Hilla canal and secondary channels, thus opening up over 650,000 acres for irrigation in the western delta. A parallel barrage at Kut, on the Tigris, which was completed in 1939, permitted the forking of the river through abandoned channels and ultimately will bring almost 1 million acres under irrigation. A dam on the Diyala River provides water for the irrigation of about 260,000 acres in that valley. Other projects, designed for flood control, irrigation and sometimes hydroelectric power purposes, are under construction, or planned, for the Great Zab, the Little Zab and other rivers. The enlargement of Habbaniya Lake, west of Baghdad, into a reservoir to control the flooding of the Euphrates and to furnish water for expanded irrigation facilities has been completed recently, while the conversion of the Wadi Tharthar depression, in the Al Jazira region, into a reservoir for the storage of the flood waters of the Tigris was
653 in process of construction in 1952. A Gen-
312 eral Development Board was created by the Iraqi government in 1950 to review its various development programs, including irrigation, communications, medical institutions and other public services. Since its inception, the Board has underwritten extensive projects for the development of domestic water supplies and irrigation.

Waste Disposal

364 There are no municipal sewerage systems in Iraq. In the cities, cesspits are commonly employed for the disposal of sewage, although water-borne systems, connected with septic tanks, are installed in some of the modern homes, hotels and public buildings. The contents of the cesspits are usually carted to dumping grounds on the outskirts of the towns. In the smaller towns and villages, sewage disposal is by means of pit privies or cesspits. However housetops, courtyards and other convenient sites often

63:Simmons et al G-5 (1941-1951) 1954
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364 serve as latrines, while the use of the banks of streams or canals facilitates the ablutions required by Moslem rites. Frequent pollution of the water supplies promotes the spread of intestinal infections, which are prevalent among all groups of the population.

Fauna and Flora

136 164 **Arthropods. Mosquitoes.** Twelve species of anopheline mosquitoes have been recorded from different parts of the country, but the majority are regarded as of minor significance. Four species are of major interest in the transmission of ma-
136 laria. *Anopheles stephensi* is the primary vector throughout southern Iraq. *A. sacharovi* (— *A. elutus*) and *A. superpictus* are the principal vectors in the north, while *A. maculipennis maculipennis* is implicated in localized areas in the higher mountain valleys. *A. pulcherrimus* is widespread, particularly in the southern provinces, but is of doubtful importance in transmission. Other species, which are present to a varying extent in diverse localities, are *A. claviger*, *A. hyrcanus*, *A. multicolor*, *A. d'thali*, *A. fluviatilis*, *A. algeriensis* and *A. marteri*.

A. stephensi, the chief vector species in the south, is abundant in the irrigated date-growing areas along the Shatt al Arab and in the alluvial plains region, particularly in the Euphrates basin. It also occurs in various foci in the Tigris valley along the middle course of the river and in the Diyala basin to the edge of the foothills, as well as in the spring-fed oasis of Shifathah, in the desert west of Kerbela. It breeds in vegetated irrigation canals, seepage pools, borrow pits, shallows wells, hoofprints and other temporary collections of water. The larvae are found in greatest numbers from May to October, although breeding takes place throughout the year in the Gulf area. The prevalence of this species has increased appreciably within the last few decades, paralleling the expansion of irrigation facilities. At present it is the only proven vector in the Shatt al Arab and the lower delta areas.

illness and death in the rural areas is incomplete and unreliable. An unduly large proportion of the medical personnel is concentrated in Baghdad, Basra, Mosul and other cities, while the inhabitants in many of the more remote districts receive little or no medical attention. Local authorities estimate that, in the case of most diseases, the official reports represent about one tenth of the probable prevalence. The mortality statistics are of questionable value, since the deaths in rural communities are often certified by nonmedical officials, and a considerable percentage are listed as due to unknown causes. Investigations undertaken by the staff of the Royal Hospital and the Royal College of Medicine, the Department of Endemic Diseases and other organizations contribute supplementary information on the nature and the prevalence of specific infections, as malaria and schistosomiasis.

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Diseases Spread or Contracted Chiefly Through Intestinal or Urinary Tract

Typhoid and Paratyphoid Fevers. Enteric fevers are endemic: from 559 to 842 cases of typhoid fever and from 97 to 230 cases of paratyphoid fever were reported annually in the 6 years 1944-49. About 70 to 80 per cent of the known cases are classified as typhoid fever. The relative prevalence of paratyphoid A and B infections is uncertain, however, as differential diagnostic tests are seldom attempted, except in the central bacteriologic laboratory in Baghdad. Few large-scale epidemics have been reported since the improvement of the water supplies in the larger cities, but localized outbreaks, caused by contaminated food or water supplies, are numerous. Cases occur throughout the year, with the peak of incidence in the summer months, from July to October. Sporadic cases of paratyphoid C fever have been recorded, some of which have been associated with primary meningeal symptoms.

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Dysenteries. Both bacillary and amebic dysentery are widespread. Amebiasis is ap-

63:Simmons et al G-5 (1941-1951) 1954
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SUMMARY

Iraq encompasses the valleys of the Tigris and the Euphrates rivers, and is associated historically with Mesopotamia, the home of one of the oldest civilizations on record. It has been an independent sovereign state since 1932. The population, which was estimated at 4,799,500 in 1947, is 95 per cent Moslem and predominantly Arab. Extensive petroleum resources and date cultivation contribute to the wealth of the country, which is still relatively underdeveloped in other respects. The public health activities of the Iraqi government are centralized in the Ministry of Health, with headquarters in Baghdad. The Ministry is responsible for the maintenance of preventive and curative services, which are carried out in the provinces through subordinate provincial organizations. Municipal departments exist in Baghdad and the principal cities, but in other areas the enforcement of sanitary regulations devolves upon the government officers. In 1950, there were 82 civilian hospitals in the country, with an aggregate capacity of 4,901 beds, or slightly more than 1 bed per 1,000 population. Almost one half of the total beds were located in the Baghdad area. Approximately 82 per cent of the hospitals are supported by the government. Also in 1950, 433 dispensaries were functioning in various parts of the provinces, 403 under the jurisdiction of the government health authorities.

The water supplies in the towns and the villages of the alluvial plain are derived from rivers, canals, lakes and wells; in the northern highlands, from streams, springs and wells. All the urban supplies are obtained from rivers, except in Erbil and Sulaimaniya, where spring sources are utilized. The water supplies of the larger cities are treated, but those in the rural areas are unprotected and often polluted. There are no sewerage systems. In the cities, cesspits and septic tanks are employed for the disposal of sewage; in the rural villages, the means are more primitive. The dietary

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